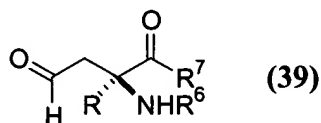


2. A process according to claim 1 wherein said polypyrrolinones are substantially diastereomerically pure.

3. A process according to Claim 1 wherein the initial α -amino- α -substituted-1,4-dioxo compound is a compound (39) and R^6 is an alkoxycarbonyl protecting group, R is as defined above and R^7 is a lower alkoxy group,



4. A process according to claim 1 wherein the oxidant in step (c) is oxalyl chloride, a tertiary amine and DMSO.

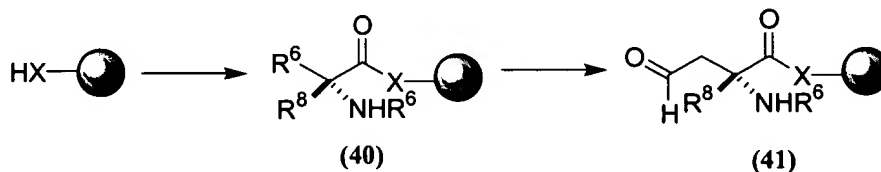
5. A process according to Claim 4 wherein the tertiary amine is DBU or di-*iso*-propylethyl amine.

6. A process according to Claim 1 wherein the crown ether in step (b) is 18-crown-6.

7. A process according to Claim 1 wherein the base in step (b) is potassium hexamethyldisilazane.

8. A solid-phase process according to claim 1 wherein R^7 is a carboxyl or carbamido linked to a solid support further comprising the steps of:

(f) attaching a latent aldehyde (40) to a solid support wherein and converting the latent aldehyde to an aldehyde (41);

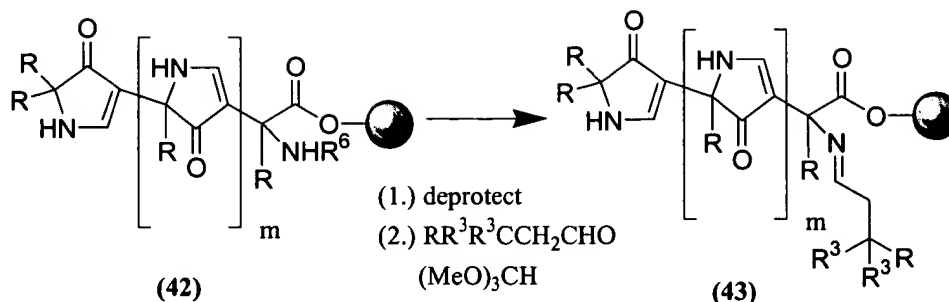


wherein:

R^8 is 3-methyl-1-but-2-enyl, 2,2-dimethoxyethyl, 2-hydroxyethyl, and

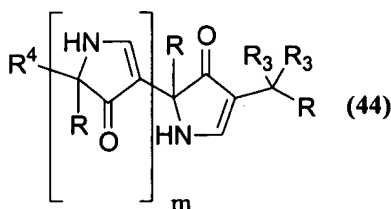
X is nitrogen or oxygen;

(g) repeating steps (a)-(c) m times and terminating the synthesis as in step (e) to produce polypyrrolinone (42);



(h) cleaving the polypyrrolinone from the resin by deprotecting the α -amino group, and exposing the α -amino acid to a plurality of treatments with an aldehyde, trimethylorthoformate, optionally in the presence of a solvent, to produce the corresponding imine (43); and,

(i) cyclizing (43) by forming the metalloimine carbanion with base, optionally in the presence of a crown ether, to produce a pyrrolinone (44).



9. A process according to claim 7 wherein the oxidant in step (c) is oxalyl chloride, a tertiary amine and DMSO.

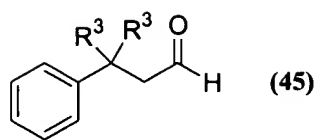
10. A process according to Claim 7 wherein the tertiary amine is DBU or di-*iso*-propylethyl amine.

11. A process according to Claim 7 wherein the crown ether in step (b) is 18-crown-6.

12. A process according to Claim 7 wherein the base in step (b) is potassium hexamethyldisilazane.

13. A process according to Claim 7 wherein R^6 is a trialkylsilylethoxycarbonyl group.

14. A process according to Claim 7 wherein the aldehyde in step (h) is a 3-phenylpropionaldehyde (45) derivative optionally substituted at the 3-position with one or two R^3 substituents.



15. A process according to Claim 7 wherein the aldehyde in step (h) is 3-phenylpropionaldehyde.